

HYBRID CERAMIC MATRIX COMPOSITE TURBINE BLADES FOR IMPROVED PROCESSIBILITY AND PERFORMANCE

ABSTRACT

The present invention is a hybrid ceramic matrix composite turbine engine component comprising an outer shell section(s) and an inner core section(s), wherein the outer shell section(s) and the inner core section(s) were bonded together using an MI process. The outer shell section(s) comprises a SiC/SiC material that has been manufactured using a process selected from the group consisting of a slurry cast MI process and a prepreg MI process. The inner core section(s) comprises a material selected from the group consisting an Si/SiC composite material and a monolithic ceramic material. The Si/SiC composite material may be manufactured using the Silcomp process. The present invention may be a high pressure turbine blade, a high pressure turbine vane, a low pressure turbine blade, or a low pressure turbine vane. The present invention is also a method of manufacturing a hybrid ceramic matrix composite turbine engine component.